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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/916,056

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James D. Miller

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EXAMINER

NGUYEN, SON V

ART UNIT

PAPER NUMBER

2839

DATE MAILED: 03/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/916,056

Applicant(s)

Miller et al.

Examiner

Son Nguyen

Art Unit

2839



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on _____
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on Jul 26, 2001 is/are a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
*See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). 4 6) ☐ Other: _____

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DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities:

In page 6, line 24, it appears that electronic connector "12" should be changed to --10--.

In line 39, it appears that output port "16a" should be changed to --16b--.

The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification. Appropriate correction is required.

Drawings

2. The drawings are objected to because: the cross hatching does not conform to the guidelines as set out in MPEP section 608.02. In particular, the cross-hatching of the insulative portions (resin, plastic, etc.) of a plastic base matrix (102, 202, 302, 402) in figures 7-10, should be cross-hatched with alternating thick and thin diagonal lines; and the cross-hatching of the conductive portions of conductive filler materials (104, 204, 304, 404) in figures 7-10, should be cross-hatched with thin diagonal lines. Correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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4. Claims 1-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, line 2, recites limitation "capable of electronically coupling two data devices together." It has been held that the recitation that an element is "capable of" performing a function is not a positive limitation but only requires the ability to so perform. It does not constitute a limitation in any patentable sense. *In re Hutchison*, 69 USPQ 138, 33 CCPA 879 (1946). MPEP 706.03(c). In line 4, recites limitation "a housing positioned about said heat generating electronic component." The term "about" is a relative term which renders the claim indefinite.

Claims 2-10 have the defects of claim 1.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

6. Claims 1, 4-6 are rejected under 35 U.S.C. 102(a) as being anticipated by Nightingale et al. (US 6,027,256).

The claimed invention reads on Nightingale et al. as follows:

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Regarding claim 1, Nightingale et al. discloses a laser diode assembly reads on applicant's an electronic connector, the connector [figures 1-2] comprising:

- a laser diode [40] reads on applicant's a heat generating electronic component; and
- the laser diode mounted inside a closure [1, figure 1] reads on applicant's a housing positioned about the heat generating electronic component (laser diode), the housing being made of a thermally conductive material [column 3, lines 13-20], and the housing being in thermal communication with the heat generating electronic component (laser diode) with heat being dissipating from the heat generating electronic component (laser diode) and through the housing [column 3, lines 13-18].

Regarding claims 4 and 5, Nightingale et al. discloses the laser diode [40] is a semiconductor device, and also is a laser.

Regarding claim 6, Nightingale et al. [figure 4] discloses the electronic connector (laser diode assembly) is an opto-electronic connector interface between a fiber optic cable [46] and electronic cable [172] connected to an electrical connector [174].

All the elements recited in the claims are read in the reference.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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8. Claims 2-3 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nightingale et al. in view of Gammon (US 5,847,938).

Nightingale et al. discloses the instant claimed invention as described above except for the thermally conductive material is a thermally conductive net-shaped moldable polymer composition, the housing is injection molded, and the housing is net-shape moldable.

Gammon teaches a shield [30, figure 3, column 5, lines 51-60] can be injection molded as a single integral piece (net-shape) of polymer composition comprising a base matrix as a plastic material having an aluminum conductive filler imbedded in the plastic material.

It would have been obvious to one having ordinary skill in the art at the time invention was made to modify the housing of Nightingale et al. to provide the housing is made from the molded polymer composition as taught by Gammon in order to facilitate the flow characteristics suitable for molding of the housing [column 5, lines 56-60].

9. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nightingale et al.

Nightingale et al. discloses the instant claimed invention as described above and including a thermal conductivity of a base of the housing is greater than $100 \text{ W/m}^0\text{k}$, and a thermal conductivity of a side wall of the housing is lesser than $100 \text{ W/m}^0\text{k}$ [column 2, lines 31-36]. However, Nightingale et al. does not disclose the connector has a thermal conductivity of at least $30 \text{ W/m}^0\text{k}$. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the composition of the conductive material of the housing or the sizes of the electronic components to provide the connector has a suitable thermal conductivity of

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at least 30 W/m⁰k for the purpose of providing an excellent heat path cooling from the laser diode through the housing, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

10. Claims 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nightingale et al. and Gammon and further in view of Baumberger et al. (US 5,230,632).

Nightingale et al. and Gammon discloses the instant claimed invention as described above except for the base matrix is a liquid crystal polymer material.

Baumberger et al. teaches a connector housing is made of electrically conductive material comprising a liquid crystal polymer material filled with thermally conductive filler [column 6, lines 27-31].

It would have been obvious to one having ordinary skill in the art at the time invention was made to use the liquid crystal polymer material as taught by Baumberger et al. in Nightingale et al.'s housing and molding technique of Gammon for the purpose of facilitating molding and manufacturing process for such conductive housings of the connectors.

11. Claims 11 and 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Berg et al. (US 5,980,324) in view of Gammon (US 5,847,938).

Berg et al. [figure 9] discloses a method of forming an electronic connector, comprising the steps of:

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- providing a heat generating electronic component [21, 23, 25] capable of electronically coupling two data devices together having a first port and a second port [33,34]; and
- forming an outer housing [22] around the heat generating electronic component and leaving the first and second ports of the heat generating electronic component exposed.

Berg et al. discloses the instant claimed invention as described above except for the housing is molded from a moldable conductive polymer material and electromagnetically shielding the heat generating electronic component by surrounding the component with an electromagnetically shielding material.

Gammon teaches an electromagnetic shield [30, figure 3, and column 5, lines 51-60] surrounded electronic components [24], wherein the shield can be injection molded as a single integral piece of polymer composition comprising a base matrix of a plastic material having an aluminum conductive filler imbedded in the plastic.

It would have been obvious to one having ordinary skill in the art at the time invention was made to modify the housing of Berg et al. to provide housing is made of molded conductive material or electromagnetic material as taught by Gammon in order to facilitate the flow characteristics suitable for molding of the housing [column 5, lines 56-60] and also protecting against electromagnetic interference problems of the electronic components.

12. Claims 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Berg et al. and Gammon in view of Baumberger et al.

Berg et al. and Gammon discloses the instant claimed invention as described above

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except for the base matrix is a liquid crystal polymer material.

Baumberger et al. teaches a connector housing is made of electrically conductive material comprising a liquid crystal polymer material filled with thermally conductive filler [column 6, lines 27-31].

It would have been obvious to one having ordinary skill in the art at the time invention was made to use the liquid crystal polymer material as taught by Baumberger et al. in Berg et al.'s housing and molding technique of Gammon for the purpose of facilitating molding and manufacturing process for such conductive housings of the connectors.

Conclusion

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Son Nguyen whose telephone number is (703) 308-8745.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynn Feild, can be reach on (703) 308-2710. The fax phone number for this Group is (703) 308-7722.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-1782.



Son Nguyen
Examiner
GAU: 2839

sn
February 27, 2003